

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2016 / 2017

PPS 0335 – PROBLEM SOLVING AND PROGRAMMING (Foundation in Information Technology)

26 MAY 2017
9.00 a.m. - 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 2 pages (excluding the cover page) with 5 questions only.
2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1 [10 Marks]

- a. Problem solving is not an easy process. It takes practice and time to perfect, but in the long run the process proves to be of great benefit. List **FOUR (4)** difficulties with problem solving.
(4 marks)
- b. State **THREE (3)** impacts of making a good decision.
(3 marks)
- c. Name **THREE (3)** current examples of problem that could be solved using algorithmic and **THREE (3)** current examples of problem that could be solved using heuristic approach.
(3 marks)

QUESTION 2 [10 Marks]

- a. Which type of problems are easier to define for computers and why?
(2 marks)
- b. Evaluate the following equation, given $A = 18$, $B = 6$, $C = 2$, $D = 60$ (show the structure of the order of processing and the resultant of each order of processing):
$$E = D / B * ((A + 6) \setminus (C + 2))$$

(6 marks)
- c. How does a problem-solving tool help in leading a solution? Give **FOUR (4)** answers.
(2 marks)

QUESTION 3 [10 Marks]

- a. Briefly describe a module.
(1 mark)
- b. Suggest descriptive name of module(s) you might use to solve the following problems:
i. Putting a list of names in alphabetical order.
ii. Calculating the average of series of numbers.
iii. Calculating the total mileage given the distance between cities.
(3 marks)
- c. A sweater is on sale for 25% off the original price. The selling price is RM100. Write a pseudocode to calculate and print the original price.
(4.5 marks)
- d. Is *age of students in a class* a variable or a constant? Explain your answer.
(1.5 marks)

Continued...

QUESTION 4 [10 Marks]

- a. Draw a flowchart for a program that asks a user to enter the unit price and quantity of the products sold and then calculates and displays the total sale.
(4 marks)
- b. Write a pseudocode for the problem in Question 4(a) above.
(5 marks)
- c. Suggest the most suitable data type for the fields below with the possible data to be used in a program.

| Possible Data | Suitable Data Type |
|---|--------------------|
| 1. A field to store students' registration date | |
| 2. A field to store students' address | |

(1 mark)

QUESTION 5 [10 Marks]

You have been asked by your university to create a room booking program that can determine the appropriate capacity for a classroom.

The program will read in the maximum room capacity and the number of students to use or enter the classroom. If the number of students is less than or equal to the maximum classroom capacity, the program announces that the classroom is permitted for booking and will show how many more available capacity. If the number of students exceeds the maximum classroom capacity, the program announces that the room booking cannot be made as the number of students is more than the permitted capacity and will show the number of exceeding capacity. Your program should allow the calculation to be repeated as often as the user wishes.

- a. Create an IPO chart to show the input, the processing, and the output for this program.
(2 marks)
- b. Represent this program graphically by using a flowchart.
(8 marks)

End of Paper